

Kollock (H.M.)

HISTORY AND TREATMENT

OF

VESICO-VAGINAL FISTULA:

A REPORT

READ BEFORE

THE MEDICAL SOCIETY OF THE STATE OF GEORGIA,

AT THEIR ANNUAL MEETING AT AUGUSTA, APRIL 8TH, 1857.

BY P. M. KOLLOCK, M. D.,

PROFESSOR OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN,
IN THE SAVANNAH MEDICAL COLLEGE, AND MEMBER
OF THE AM. MED. ASSOCIATION.

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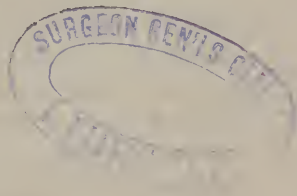
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REPORT.

In order to secure completeness and systematic arrangement, in the Report which I now present to the Society, on the subject which was assigned to me at its last annual meeting in Macon, it will be necessary for me to go over ground which has been before trodden by other Reporters, and to recapitulate historical facts and statements, which are familiar to many of my hearers, and which, to them, may be wanting in that degree of novelty and freedom from triteness, which are requisite to secure a patient and willing attention.

The immense importance of the subject, however—the difficulties by which it has been hitherto surrounded, and the very meagre manner in which it has been treated of in text-books, will, I feel assured, be received as a sufficient excuse for this unavoidable repetition.

Whenever an abnormal communication is established by disease or accident, between the urinary and genital organs of a female, so that the renal secretion, after arriving in its vesical receptacle, instead of being expelled at will through its natural canal, the urethra, passes directly and involuntarily, into the vagina or uterus—it is called a fistula, the character of which will vary, as regards its curability and the inconvenience and suffering which it induces, according to the point at which the unnatural route occurs. And in order to distinguish these several varieties of the affection, titles have been conferred upon them derived from their locality: hence we have the *urethro-vaginal*, *Vesico-vaginal*, and *Vesico-uterine* varieties, according as the communication is between the urethra and vagina, the bladder and vagina, and the bladder and uterus. In the first, the perforation occurs in the mucofibrous septum, which separates the canal of the urethra from that of the vagina; in the second, it occurs at the point where the “bas fond,” or lower fundus of the bladder rests upon the front

wall of the vagina; in the third, the rent occurs at the point of contact of the vesical fundus, with the anterior part of the cervix uteri.

The gravity of the affection is increased according to the distance of the fistulous opening from the external orifice of the urethra. There is no disease, concerning which we learn less from the writings of ancient authors than the one which we are now considering. There is no reason to doubt that it did sometimes occur, even in the most primitive stages of human existence, for one of the chief causes of it (difficult parturition) had its origin in the primæval curse—and even the brute creation are not wholly exempt from it.

Notwithstanding the sad and disgusting picture which is presented by the victims of this fearful malady, it attracted little or no attention from surgeons until the commencement of the present century, and the most recent surgical works alone contain any thing like an intelligible account of it.

We cannot restrain our astonishment at this circumstance, when we contemplate the misery and ruin which is wrought in the existence of that portion of the human family, which Shakspeare styles “the cunning’st pattern of excelling nature”—which, when robed in charms dependant upon a healthy performance of all the animal functions, challenges the admiration of the most insensible, and warms into adoration and love the icy soul of the Stoic.

The causes which usually operate to the production of a condition so deplorable, are such as are connected with the performance of a function, than which, there is none more important, none more necessary to the existence and continuance of animal life: the function of procreation. Nature—all powerful as she is—sometimes fails in the performance of this, her grandest work; and Art, is either summoned too late to her assistance, or proves itself utterly incompetent.

Whenever, during a protracted or difficult parturition, the presenting part of the child (generally the cephalic extremity) is forced down into the pelvic excavation, and there becomes arrested and impacted from any cause, the soft parts of the mother receive a severe nip between the child’s head and the osseous circle by which they are enclosed, as if they were placed between the jaws of a vice.

When this severe pressure is allowed to continue for many

hours, occasioned by strong uterine contraction acting on the child's pelvic extremity, and a continuance of the obstruction to the advance of the cephalic extremity, the most prominent point of the vaginal surface, which is generally in front, behind the symphysis pubis, and where the urethra passes out under the pelvic arch, has to bear the brunt of the greatest amount of the acting force; the circulation is arrested at that point; a slough ensues and a loss of a portion of the soft maternal tissue; which results in the production of a fistulous opening, through which urine flows into the vagina, either directly, or, if the slough occurs at a sufficient distance from the external orifice, the urine passes first into the uterine cavity, and then into the vagina.

Although this is the usual manner in which these fistulæ are produced, there are other causes equally competent, and which play an important part in their creation.

Among these, are clumsy manipulations with instruments, in the hands of unskilful operators, for the purpose of effecting delivery; the introduction of the blades of the forceps into the maternal organs with undue force—slipping of the same instrument during traction—slipping of the perforating scissors, or unguarded crotchet—sharp spiculæ or fragments of the foetal cranial bones, carelessly extracted, may lacerate and tear the soft parts of the mother, so as to terminate in the formation of urinary fistulæ. The long continuance of a foul pessary in the vagina, has been known to produce ulceration and perforation of the vesico-vaginal septum; as well as ulcerations of a specific character, both syphilitic and cancerous. Colombat states, that an example is cited by Fabricius Hildanus where the fistula was caused by the long retention of a calculus in the bladder. By whichever of the causes which have been detailed, the malady under consideration is originated, it is soon manifested, by a group of symptoms sufficiently characteristic to render the diagnosis both easy and certain.

When it has followed a tedious labour, accompanied with long impaction of the child's head in the pelvic excavation, a retention of urine is the first link in the chain of morbid phenomena, necessitating catheterism for the relief of the bladder; and this circumstance should arouse the suspicions of the attendant accoucheur, and put him on the alert. The retention may continue for several days—from seven to twelve—and then be converted into complete incontinence, the sloughs of greater or

less extent having fallen, and a continued, involuntary stillicidium will be established.

Such a train of symptoms might possibly be caused by paralysis of the sphincter vesicæ; but the vaginal examination with the finger will generally detect the abnormal rent, and a probe or catheter passed into the urethra will come in contact with the end of the finger. The introduction of the speculum exhibits most satisfactorily, in the majority of cases, to the eyesight, the lesion which the soft tissues have sustained, and confirms the diagnosis.

The poor woman is now reduced to a condition of the most piteous description, compared with which, most of the other physical evils of life sink into utter insignificance. The urine passing into the vagina as soon as it is secreted, inflames and excoriates its mucous lining, covering it with calcareous depositions, and causing great suffering. It trickles constantly down her thighs, irritates the integument with its acrid qualities, keeps her clothing constantly soaked, and exhales without cessation its peculiar odour, insupportable to herself and all around her. In cases where the sloughing has been extensive, and the loss of substance of the tissues great, and where neither palliative nor curable means have availed for the relief of the sufferer, she has been compelled to sit constantly on a chair, or stool, with a hole in the seat, through which the urine descends into a vessel beneath.

As has been stated, the gravity of the case is increased, in proportion to the distance of the perforation from the external orifice of the urethra. When it occurs in the urethra rather more power is retained over the discharge, which may not occur involuntarily; but when the base of the bladder is the seat of the fistula, all command over the discharge is lost, and it flows away constantly; unless the orifice is small, and capable of being closed by the gravitation of the uterus upon it, while the patient is in a sitting or standing position; even then, the urine is liable to be expelled by the expiratory efforts of coughing, sneezing, laughing, &c., the contraction of the diaphragm then forcing down the abdominal viscera upon the pelvic.

As fistulae vary in position, so do they in shape or figure, size and number. They may be longitudinal or transverse, round or oval, or angular; there may be one or more. I have never seen more than one in any one case. Dr. N. Bozeman, of Montgomery, Ala., records cases where there was a plurality.

According to my experience, the transverse arc more common than the longitudinal. Where the sloughing has been great, and extensive losses of substance sustained, the vagina after cicatrization is contracted, its walls rigid and cartilaginous, and its canal obstructed by adhesions and bridles. The size of the opening may vary from that into which the tip of the index finger may be inserted, to one which is capable of receiving several fingers.

Dr. Bozeman, in a letter to me, in reference to cases of this description, says: "In some of them nearly the whole of the septum had sloughed out, thus allowing the whole of the superior fundus of the bladder to protrude through, and appear at the vulva, in the form of a large fleshy tumour. In one case, both ureters were to be seen upon the surface of this tumour, thus allowing the urine to dribble away without even reaching the cavity of the bladder or vagina. Nor was this all: in two instances a portion of the beginning of the urethra had also been carried away in the sloughing process, and the anterior border of the fistula was found firmly adherent to the pubic arch."

The *Prognosis*, in cases of this affection, has been hitherto unfavorable, even in such as might appear most within the reach of curative means, regarding their position, size, &c., so that in the majority of instances, little more than palliative measures have been thought of; and, as was once recommended to me by a distinguished surgeon, whom I consulted in a case of this kind, "a masterly inactivity" has been deemed most advisable. The ingenuity of surgeons has been taxed to the utmost in devising means for alleviating the sufferings of those who laboured under this dreadful calamity. Various means were resorted to for protecting the parts which were exposed to the irritating action of the urine, and for rendering the woman as comfortable as circumstances would permit. Emollient baths and unguents were prescribed for the promotion of cleanliness and allaying inflammation; and urinals of different shapes and materials were contrived for the purpose of receiving the urine as it was secreted. Tamponnement, or plugging the vagina, was resorted to as a palliative and curative measure combined, the catheter being retained in the bladder for the purpose of conducting off the urine from the fistulous opening. Dessault was among the advocates for this treatment; and some cures are recorded as having been effected after a very long and tedious perseverance in the course. Such fortunate re-

sults, however, only occurred in cases where the fistula was situated at some point in the course of the urethra; where it was situated above, tamponnement was of no service.

Whether urinary fistulæ in the female are of more frequent occurrence now than formerly, or whether they were overlooked, by reason of the imperfection of the means of investigating female complaints, it is certain that modern surgeons have not rested satisfied with merely palliative measures; and those designed for effecting a radical cure have been essayed with more or less success.

The treatment for the radical cure of the disease may be divided into that by *Cauterization*, and that by *Suturization*. The former may be sub-divided into cauterization by chemical caustics, and that by the actual cautery, or heated iron, or the galvanic spark.

The method by suturization, is susceptible of a subdivision into that which includes autoplasty, or the transplantation of a flap from a neighboring part, and securing it by sutures in the fistulous opening, (the edges of which have been previously freshened with the knife,) and into that, where the edges of the fistula, after having been pared with the knife, are drawn together and maintained in contact by suture.

Another method of cure is mentioned as having resulted favorably—viz: laying open the fistula into the urethra, and healing it as in cases of rectal fistula.

Cauterization, as a curative measure, has had its advocates among modern surgeons, the most distinguished of whom are Dupuytren and Liston. When chemical caustics are employed the Nitrate of Silver is preferable. This is only adapted to small fistulæ; it is used for the purpose of promoting granulations on the edges of the fistulous opening, and gradually closing it. Pancoast states that he has, "in this manner, succeeded in occluding a fistula of the size of a large goose quill." For larger fistulæ the actual cautery must be used; its effect is to produce contraction, as is usual with the cicatrices from burns.

When the cauterizing iron is used, it is advised that it be applied at a white heat, for an instant, around the edge of the opening for some distance on the vaginal surface; when the orifice is large, at long intervals; when small, once in three or four days. A late writer advises that the interval should not be less than two or three months, in order to allow time for the contraction of the cicatrix.

Within a short time Galvanism has been employed for the purpose of cauterization in this, as well as other surgical cases, by means of an ingenious portable apparatus.

My note-book contains the following account of the first case of Vesico-vaginal Fistula which it has been my fortune to encounter:—

CASE. August 23rd, 1856, I was called upon to examine a negro girl, the property of Mr. Wm. Gibbons, a large rice planter on the Savannah river. I received the following account of her case:—That she had been delivered a short time previous, after a very severe and protracted labour, of a large dead child. A short time after this, her urine began to flow from her involuntarily; there was a constant stillicidium, which caused much troublesome excoriation of the parts externally.

This history of the case led me to suspect, immediately, urinary fistula, caused either by rupture of vesico-vaginal septum during labour, or by a succeeding slough. As the incontinence did not occur instantly, the latter conjecture seemed more probable. In confirmation of my suspicions, the finger introduced into the vagina, detected a rent in the septum, which seemed to extend through the os tinæ and cervix uteri. A probe introduced into the urethra passed readily into the vagina, and came in contact with the finger in the vagina. The speculum revealed to the eyesight what the touch had foretold.

The treatment of the case was commenced by placing the woman in bed, and introducing a silver female catheter. The difficulty of retaining this instrument *in situ*, and the insufficiency of its length, allowing the urine to trickle over and bathe the vulva, induced me to substitute a gum-elastic male catheter of the usual length, passed through a small cork as a shoulder, to prevent its slipping too far inwards; a belt, made of saddle-girth webbing, was buckled round the abdomen; a piece of sole-leather, of sufficient length and breadth, was attached to the belt in front, passing down in front of the vulva, and the end of the catheter external to the cork, was passed through a small hole in the leather. A bowl was placed at the end of the catheter, which was allowed to remain open, to receive the urine as it flowed out from the bladder. This rude apparatus was found to answer pretty well the purpose for which it was designed. As, however, the gum-elastic catheter was soon rendered unfit for use by the action of the urine,

and the substitution of a new one every day or two involved a good deal of expense, I obtained a flexible metallic catheter, which I cut of the proper length, and substituted it for the gum-elastic. The patient soon was enabled to wear this instrument, without much inconvenience, it being removed every other day for the purpose of cleaning it. The flow of urine through the fistula having been thus very effectually cut off, the orifice began to contract, and its progress was quite satisfactory until the contraction reduced it to one or two lines in diameter. It then assumed a most tedious and provoking indolence. Nitrate of silver was frequently and repeatedly applied without any visible service. On the 10th of December, (more than three months from the commencement of the treatment,) caustic potash was applied—a part of the vagina, near the fistula, became accidentally touched—a slough $\frac{1}{4}$ inch in diameter ensued. This ulcer was healed by the application of a solution of sulph. cupri. The effect of the vegetable caustic on the fistulous opening was very slight. After this, the actual cautery was substituted for the chemical. In the course of some weeks, the fistula was reduced to a point, and finally closed—no urine appearing to pass through.

The whole treatment of this case occupied the greater portion of a year, during which time, the woman was kept constantly in bed, and the catheter retained permanently in the bladder. The tediousness and uncertainty of the treatment by cauterization, are insurmountable objections to it, and it will certainly never be employed by those who are acquainted with the more satisfactory and reliable processes which will be detailed in this report.

The merit of having introduced the method of treating this description of case by suturization, has been attributed to Roonhuysen. Dieffenbach, Jobert, Velpeau, Leroy d'Etoilles, Lallemand, have figured most extensively in this department, and have claimed for themselves a great share of success. Their different methods are very fully detailed in the works on Operative Surgery. The principle common to each method is to freshen the edges of the fistula either by the knife, or cautery, before the sutures are introduced. The idea of applying Plastic Surgery to the cure of the disease originated with Jobert de Lamballe. Leroy and Velpeau have adopted the same plan, with some variations in the manner of executing it. A variety of suturization has been invented by Lallemand, of Montpellier, which consists in draw-

ing the edges of the opening together by means of a species of hooked forceps, and retaining them in contact by means of the same instrument. Finally, in very bad cases, where these different plans have failed, or cannot be executed, Vidal has recommended that the mucous membrane of the orifice of the vagina should be dissected off and the opening be closed by sutures, making a pouch or cloaca of the vagina, for retaining the urine, and with a small orifice for its passage outwards.

The several methods which have been alluded to—the result of the ingenuity and perseverance of European surgeons—are so difficult of execution, and so uncertain in their results, even in the hands of their accomplished authors, that they hold out small inducement for their imitation, and we turn with disappointment and dissatisfaction from their contemplation. Their statistical records contain so large an amount of incurable subjects, that, if we embrace the popular creed in the infallibility of European authority—of hopelessness of success elsewhere, when failure attends on the efforts of those eminent surgeons, whose names have been mentioned, it would seem as if the condition of woman, in a world where her portion of trial has been dealt out with no niggard hand, wanted but this last drop to fill to overflowing, the bitter chalice, which it is her lot frequently to quaff, and that death is the only friend, under such circumstances, to whom she can appeal for relief.

Turning, however, from this gloomy picture, which the records of European Surgery present, in regard to the treatment of this class of affections, and casting our eyes Westward, we see, in that direction, a brighter prospect opening.

America, the land of progress in Science and in Art, has not been behind-hand in this instance, and the superiority of American ingenuity and originality are, as usual, prominent. As Americans—as citizens of the Southern section of our confederacy, we can assert, with truth, and with an honest pride, that in no part of the world, has as much been done in the way of really practical improvement in this branch of Operative Surgery, as by the American surgeons of the South. The records of American Surgery of the last thirty years, contain a comparatively small number of reported cases. As it is probable that cases successfully treated are almost the only ones reported, it cannot be doubted, that a considerably larger number have occurred, which have been

abandoned as incurable, of which the medical public have heard nothing.

The treatment of the reported cases has varied according to the genius and surgical skill of those into whose hands they have fallen. The names which have been most prominently associated with operations for the cure of this disease, are those of Pancoast, of Philadelphia; Hayward, of Boston; Mettauer, of Virginia; Sims, of New York, formerly of Alabama, and Boze-man, of Montgomery, Alabama. All these surgeons have adopted the treatment by *suture*—the edges of the fistula having been first freshened with the knife. The method of each varies in some particulars from that of the others.

The peculiarity of Dr. Pancoast's method consists in shaping the lips of the fistula in such a manner that one is dovetailed into the other, and secured by sutures of silk.

Dr. Hayward, after introducing into the urethra a large whale-bone bougie, in order to bring the fistula more within reach, removes with a knife the edges of the opening all around to the distance of one line, then dissects up the mucous membrane of the vagina to the distance of three lines, in order to present a larger surface for union, and "to prevent the necessity of carrying the needles through the bladder." The needles were then introduced "about one-third of an inch from the edge of the wound, through the membrane of the vagina and the cellular membrane beneath, and brought out at the same distance on the other side." The threads were then "tightly tied," and left about three inches in length. The catheter was introduced and the patient placed in bed on her side, and directed to live on thin arrowroot, milk and water, and solution of gum arabic.

Dr. Hayward reports, in the Boston Medical and Surgical Journal, for 1851, that he has "operated twenty-six times on nine patients—on one six times, another five, two twice, and five once." In three cases the operation was entirely successful; in five, great relief was obtained, so that the urine could be retained for a number of hours; and in the remaining, no benefit was obtained. Since the discovery of the anæsthetic powers of Ether, he places his patient under its influence. The position of the patient is, on the back, as in the operation of lithotomy.

Dr. John P. Mettauer reported in the number of the Virginia Medical and Surgical Journal for June, 1855, that twenty-five

years previous to that period, he had first operated for vesico-vaginal fistula, during which period he had met with many extremely interesting cases, most of which he had treated successfully; that he had expressed the opinion, in a publication on this subject, "that every example of the disease could be cured;" but that since that time, he had met with cases which had defied all his attempts, and induced him to modify his opinion; but that he still believed a large proportion could be cured. His plan of operating is as follows:—The patient is "placed on her back, as for the operation of lithotomy, on a high bed, with folded blankets and sheets under her to protect the bed, the parts being exposed to the strong light of a window immediately opposite to, and on a level with the perineum—care being taken that the nates rest fairly on the edge of the bedstead, so as to render the parts to be operated on, easy of access. A two-bladed speculum is employed for the purpose of dilating the os externum and vagina—the handle of the instrument being held by the patient herself. The free borders of the fistula are next denuded of their mucous membrane, by the use of delicate hooks to take hold of it, and scissors curved on their flat surfaces, or delicate knives curved in like manner, or of the ordinary form, to excise it beneath the hook." The mucous membrane is next to be removed to the extent of half an inch beyond the border, in a continuous strip. For arresting hemorrhage, cold water is to be injected with a syringe. Metallic threads of pure lead, five or six inches long, are then introduced by means of curved needles, held in Physic's artery forceps, and conveying silk ligatures, to which the leaden are attached. The needles are passed from the vesical cavity into the vaginal, one inch from the denuded margin, so as to transfix both vesical and vaginal wall. After as many sutures are introduced in this manner, as are requisite, the edges are closely approximated, and secured in that position, by twisting the wires by means of forceps, adapted to the purpose. Much care and judgment is required, to graduate the compressing force which is applied by the twisting, so that while the edges of the wound are kept in close apposition, the circulation is not arrested, so as to endanger sloughing or ulceration.

The rule by which the surgeon is to be guided in determining the proper amount of force to be applied, is, "the fixed and erected state of the twisted extremities of the wires, and their bristle-like spring when touched with the probe." The wires having been

secured in this manner, "the twisted extremities are to be cut off transversely, so as to project a few lines beyond the range of the vulva." A short silver catheter is now to be introduced, and the patient to be directed to lie on her left side. The bowels are to be constipated by opium. On the third day the ligatures are to be moderately tightened by twisting. The sutures are to be removed about the eighth or tenth day.

Dr. Mettauer remarks that "it is the depth of this suture that secures its reparative efficacy—that is the point on which success turns; and if the denudations are effectually executed, a failure will seldom follow. This suture can be safely passed through the vesical wall, and I decidedly prefer it, because it secures more effectual suturization; and it is entirely free from all liability to induce inflammation of the bladder, as my experience fully testifies."

"The possibility of small fistulous openings following suturizing through the walls of the bladder, is the only danger of importance to be feared; and if the threads are not permitted to remain longer than eight or ten days, this accident can hardly take place. I have often suffered them to remain ten or twelve days, without such an occurrence. In a few hours the ligature openings close,—I have rarely known them discharge urine after a day."

The American Journal of the Medical Sciences for January, 1851, contains a communication from Dr. J. Marion Sims, at that time a resident of Montgomery, Ala., detailing a method of treatment of the cases which we are considering, originated by and peculiar to himself, exhibiting a degree of persevering industry and ingenuity in the invention and perfection of instruments and curative apparatus, deserving of the highest commendation, and entitled to the admiration of every surgeon who feels the amount of interest in this subject which it deserves.

Dr. Sims employs a suture resembling that known to surgeons as the *quilled suture*—using leaden clamps, in place of quills, and silver wire in place of silk thread. Instead of the dorsal position, which is preferred by most surgeons, that on the knees, the body bent forward, head and shoulders depressed, nates elevated, knees separated six or eight inches, is preferred by this surgeon.

The table, on which the patient rests, is placed in front of an open window—the sun's rays are concentrated on the vulva by means of a mirror. The vagina is dilated by a speculum of pecu-

liar form—the part which enters the vagina is made of polished German silver, and shaped like a duck's beak, and is bent at right angles with the handle. This speculum is introduced at the perineal commissure of the vagina, which is above, in this position of the woman; the perineum is forcibly elevated by an assistant holding the speculum by its handle with one hand, and drawing, with the fingers of his other hand, the labium of the side on which he stands—while the other labium is drawn in a contrary direction by the fingers of another assistant standing on the other side. In this manner the whole vagina is perfectly displayed, and a fair view obtained of the fistulous orifice.

With a delicate tenaculum fixed in a handle five or six inches in length, the mucous membrane of the vagina near the edge of the fistula is raised, and with a small sharp-pointed scalpel fixed in a handle of the same length with that of the tenaculum, a strip of vaginal mucous membrane, from $\frac{1}{4}$ to $\frac{1}{3}$ of an inch in breadth, is dissected off all around the opening. The lining membrane of the bladder is not removed, unless it is very much altered in character, and projects through the opening so as to interfere with the operation.

The circumference of the opening having been thus thoroughly denuded, a spear-pointed needle, fixed on a shaft about six inches in length, armed with silk thread, is introduced at the distance of $\frac{1}{2}$ inch from the incised edge of the mucous membrane, only penetrating through the thickness of that membrane, and not entering the cavity of the bladder, and brought out at the same distance from the freshened edge of the posterior or upper lip of the fistulous orifice. The farther end of the silk is withdrawn from the eye of the needle, and afterwards the needle; the proximal end of the silk is then attached to the end of the silver wire, bent into a loop, and by means of the silk, the silver wire is lodged in the proper place. A sufficient number of sutures are introduced, according to the extent of the opening, and both ends of the wires are brought out at the vulva. The distal ends of the wires are now passed through the openings in a leaden clamp of sufficient length, and secured by being wrapped round the clamp; and this last is lodged in its place above the upper lip of the fistula, by making traction on the proximal ends of the wires.

Another clamp of the same length, as the one which has been applied, is now threaded with the ends of the wires, which remain

at the vulvar orifice, and pushed up by means of a species of fork contrived for this purpose. By making traction on the wires, and pushing up the lower clamp at the same time, the edges of the fistula are brought into close apposition. Small bird-shot, perforated with holes, are now run on the wires, and pushed up to the lower clamp, where they are secured by compression with a pair of strong forceps. The wires are then cut off about $\frac{1}{4}$ or $\frac{1}{6}$ of an inch below the shot. A catheter is now introduced into the urethra, and removed once or twice a day for cleansing. The woman is confined to bed—diet, crackers and tea; the bowels are kept entirely locked up by the free exhibition of opium. The sutures are examined about the third day, and removed on the tenth or twelfth.

Several very ingenious instruments have been invented by Dr. Sims for facilitating the performance of the operation. A blunt hook furnishes a point of support to the movable mucous membrane, in thrusting the needle through the upper lip of the fistula. A small fork can be used as a pulley for drawing down the upper end of the silk thread and preventing its cutting out; and a wider fork answers for pushing up the clamps and adjusting them.

The catheter, which is peculiar to Dr. Sims, and which he perfected, after many experiments, is shorter than those in general use—merely long enough to measure the length of the female urethra; curved at each extremity, so as to resemble the Italic letter S; the end which is in the bladder, curves upwards, and rests behind the symphysis pubis; the external end curves downwards, and rests in front of the meatus urinarius. It acts on the principle of the syphon, and is self-retaining.

Dr. Sims claims that he has originated:

1st. A method by which the vagina can be thoroughly explored, and the operation easily performed.

2nd. That he has introduced a new suture apparatus, which lies imbedded in the tissues for an indefinite period without danger of cutting its way out, as do silk ligatures.

3rd. That he has invented a self-retaining catheter, which can be worn with the greatest comfort by the patient during the whole course of treatment.

Every surgeon who has faithfully studied the method of cure which has been presented to the profession, by Dr. Sims, and the apparatus which he has invented for effecting it—and who has, at

the same time, employed it—must be prepared to accord him the fullest meed of praise, as well as gratitude, for the industry and ingenuity which he has displayed, and the very convenient and efficient means which he has placed at the disposal of the Profession, for the management of a disease which has been hitherto found exceedingly incorrigible.

But, while we are prepared to admit that, in the hands of Dr. Sims, and guided by his skill and experience, success may be the rule, while failure the exception; justice to him and others, compels us to state with candour, that such has not been the result in the practice of other surgeons.

The sources of failure are to be found in the suture apparatus. The wires *will* cut themselves out in certain cases, however much attention may be bestowed, in their introduction at a sufficient distance from the edge of the raw surface, and sufficient depth into the sub-mucous tissue; the lips included between the clamps, *will* slough, however much judgment may be exercised in drawing them together, and irregularities on the vaginal surface, rigidity from cicatrices, and the situation of either a part, or whole of the fistulous opening, may prevent the clamps from being evenly applied and with sufficient parallelism, to secure their regular and efficient action. In consequence of these occurrences, the patient has to be subjected to a greater or less number of repetitions of the operation; and, perhaps, other means have to be employed for the perfection of the cure. The following case (among others,) will prove the statement which has just been made:

March 16th, 1855. I was requested by Dr. Fickling to visit with him, Chloe, a negro girl belonging to Mr. Baynard, of this city (Savannah). I was informed that, in the month of December previous, she had been delivered of a child after a very severe labour, which lasted for two or three days; since which time, she had not been able to retain her urine. Without much difficulty, an urinary fistula was diagnosed, accompanied with great contraction and rigidity of the vaginal canal.

The death of Dr. Fickling a few days after this, placed the case entirely in my hands.

I had her removed from her owner's residence to my private infirmary, where a more thorough exploration of the case revealed the following condition of things:

The vaginal orifice contracted and rendered extremely rigid and

unyielding by the formation of tough bands on each side; a fistulous orifice, three quarters of an inch in its longest (transverse) diameter, at the distance of one and a half or two inches from the external orifice of the urethra; one half inch above this, the finger came in contact with an obstruction, or bridge in the centre of the vagina, on each side of which a narrow passage extended upwards.

The finger, introduced into the rectum, detected what *seemed* to be the cervix and body of the uterus; but this could not be very distinctly made out.

From the evidence thus obtained, I inferred that there was an adhesion of the vaginal walls at the point of obstruction to the farther passage of the finger upwards, and that the canal was obliterated from that point to the os uteri above.

The condition of this poor creature was most deplorable. The urine passed from her involuntarily and without cessation—bathing the vagina, vulva, thighs and nates, and excoriating them by its acrid properties; causing intense suffering and inability to move about, and exhaling its intolerable stench, disgusting to herself and all in her vicinity.

To rescue a fellow creature from such a state of wretchedness, every generous and humane feeling was irresistibly appealed to; but the attempt seemed hopeless, and was so deemed by most of those who saw her. Encouraged, however, by the results in some very unpromising cases reported by Dr. Sims—where his operation was crowned with success after numerous repetitions—I determined not to be deterred by these very discouraging appearances, and accordingly undertook the treatment.

As the first step towards any operative procedure, it seemed to be imperative that the vagina should be dilated. My attention, therefore, was directed to this object. At this time, the vagina was so much contracted, that the smallest sized speculum could not be introduced, and the fistulous orifice could not be brought into sight.

The patient was so intolerant of pain, that no manipulation of any importance could be performed, without placing her completely under the influence of an anæsthetic agent. She was accordingly made to inhale a mixture of chloroform $\frac{1}{4}$, sulphuric ether $\frac{3}{4}$; and the rigid bridles, on each side of the vagina, incised as freely as was deemed prudent. Dilatation was then attempted by the daily introduction of sponges and gum elastic bougies, and

a catheter was retained in the bladder to conduct off the urine from the inflamed and excoriated vagina.

On the 17th of April, the patient being etherized, the fistulous orifice was brought into view by the introduction of Sims' speculum; an incision was made with a long handled scalpel, through the upper extremity of the blind pouch, into which the vagina had been converted by the adhesion of its walls antero-posteriorly. The incision was made transversely, and carefully extended on either side so as to divide the lateral bridles as much as possible. The finger was now passed up into the incision, and made use of for tearing up the adhesions above, and separating the walls as high as could be reached; but no os uteri could be detected by the end of the finger.

The fingers in the rectum and vagina at the same time, and afterwards, a finger in the vagina, and catheter in the bladder, proved that the passage which had thus been effected was between the bladder and rectum, and in the proper locality of the vagina. Lint was now inserted into this passage in order to prevent reunion. The operation was followed by considerable hemorrhage, which continued for some hours.

The process of dilatation was continued until May 10th, when I determined to make an attempt to close the fistulous opening.

The patient was placed on a table 3 feet by 4 feet, in a kneeling position, her body being supported, the head inclined downwards, the nates turned towards an open window, and the sunlight concentrated by a small looking glass on the vulva, so as to throw as much light as possible, into the vagina. The hands, trunk and lower extremities were secured by bandages to the table. As soon as she was profoundly influenced by the anæsthetic, Sims' speculum was introduced, which exhibited the fistula very much obscured by blood and urine, from the inflamed vagina and bladder. This was sponged out, and the mucous membrane raised by the tenaculum, and dissected off by means of a knife and curved scissors. The mucous membrane was removed by excoriation to the distance of an inch in front, and the posterior lip of the fistula was formed by a thick edge of the adherent tissue which had been divided in the first operation.

With great difficulty, owing to the contracted state of the vagina, the silk threads were passed by means of Sims' needle, and the silver wires lodged in their proper places; the leaden clamps

were then applied and the edges of the fistula brought into apposition. Sims' catheter was introduced and the patient placed in bed. The bowels, which had been freely purged by castor oil on the day before the operation, were constipated, and patient kept quiet by the free exhibition of opium in two grain pills, her diet crackers and water. The catheter was removed once or twice a day and water, either warm or cold, (according to the weather,) liberally thrown upon the vulva and into vagina, by means of a syringe.

May 14th. Speculum introduced and parts examined. No derangement of the sutures; lips of fistula well approximated in centre, extremities doubtful.

May 17th. Examined: suture at left extremity of clamp torn through anterior lip; no adhesion at left extremity; middle closed.

May 21st. Sutures removed; adhesion of one-third at the centre; each extremity open, and urine passing through. These points were so much concealed by the lateral columns of the vagina that it was nearly impossible to freshen the edges, or to apply the clamps properly.

June 4th. Assisted by Drs. Bulloch, Mackall, and Mr. Godfrey a student of medicine, the patient (Chloe) was again placed upon the operating table, secured in the same manner as before and etherized—the bowels having been emptied, on the day previous, by castor oil.

In consequence of the extreme narrowness of the vagina, the speculum which was found to be inconvenient, was dispensed with, and the dilatation was effected as well as possible by my own finger and those of my assistants.

It was ascertained that about one half of the original opening had been closed by the former operation, at the centre, leaving an orifice at each lateral extremity, through which air and urine bubbled. That, on the left side, was most difficult to reach, being concealed by a rigid cicatrised fold of mucous membrane, which lay parallel with the Ischio-pubic ramus. The paring of the edges of the two openings, although attended with much difficulty, was more easily performed than at the preceding operation.

The sutures (two in number), were passed through the edges of the left opening, extreme difficulty being encountered in disengaging the silk from the eye of the needle, after perforating the

posterior lip; and on applying the clamps, the unyielding character of the tissues rendered it impossible to push up the anterior clamp as fairly and squarely as was desirable. The opening, however, appeared to be pretty effectually closed.

Two sutures were also passed in the same manner, but with less difficulty, through the opening on the right, and the clamps were placed very satisfactorily, so that the urine flowed entirely through the urethra. The patient was then remanded to bed with the catheter in the bladder, and the subsequent treatment was the same as after the first operation.

June 8th. Examined: every thing looking well. The clamp on the left side, which gave us so much trouble in the application, seemed to have retired more within the vagina, and approximated the posterior more nearly. The sutures were removed on the tenth day—it having been ascertained some days before, that those on the right side had cut through the anterior lip. I was grieved to find that no union had taken place on either side.

No farther operative procedure was undertaken for closing the fistula, until the 18th of October following. At that time it was found that the upper part of the vaginal canal had reclosed, and that the contraction of the lower portion had sensibly increased. With extreme difficulty a denuded surface was obtained, by means of the knife, around each fistulous orifice, and leaden wires were passed by means of Sims' needle, the upper thickened fold of mucous membrane was drawn down as well as possible over the openings, and the ends of the wires twisted together.

On the 20th October the parts were examined, and to my chagrin I found the wires broken. They were, accordingly, removed.

October 25th. Patient being placed on the table and etherized, a silk thread was passed, doubled, through the lips of each opening—on the distal end was secured a perforated buck-shot, which was drawn up above the posterior lip; the proximal ends of the threads were then passed through three perforated buck-shot, traction made on the thread, and the lower end tied across a round piece of wood about the size of a pencil or pen-holder. In this manner the edges seemed to be pretty well approximated, and it was hoped that their adhesion would be effected.

On the third or fourth day after this last operation, it was ascertained that the sutures had cut their way out, and they were removed.

So much irritation of the bladder and vagina was the result of these operations, that the patient was kept in bed, and the catheter retained in her bladder. As soon as this subsided, she was allowed to rise and move about.

On examination some days after, it was observed that she had some incontinence, but no passage of urine through the vagina.

Dec. 1st. Her menses made their appearance for the first time since the accouchement, at which this grave accident occurred.

Dec. 21st. The vagina is moistened slightly by a thin fluid of urinous appearance, which flows from a minute point on each side of the vagina. These points were touched occasionally with Nit. Argent. for several weeks. At length a galvanic spark was kindled at each of these points, and in the course of some weeks, every appearance of fistulous opening was obliterated, and the patient was discharged as cured.

Here, then, is a case which confirms what I have asserted—that Sims' suture, ingenious and beautiful as it is, has not proved, in the hands of others, to be "all that could be desired." The reason of its failure was found in the indurated and inelastic condition of the altered vaginal tissues, which prevented the proper approximation of the clamps, and their "imbedding" themselves in the mucous coat, as is represented by Dr. Sims.

Nevertheless, (the case just detailed, and two others which will be mentioned, to the contrary notwithstanding,) until lately, I have regarded Dr. Sims' method of suturization, as the most perfect yet discovered, and the one most likely to succeed, and that it would prove triumphant in a very large majority of cases.

During the last winter, I received a small pamphlet entitled, "Remarks on Vesico-Vaginal Fistule, with an account of seven successful operations. By N. Bozeman, M. D., of Montgomery, Alabama."

In this pamphlet, Dr. Bozeman describes "a new mode of suture"—original with himself—which he offers to the notice of the Profession, with a confidence founded on the results of the trials which he has made of it. He ascribes the discovery of this new suture to his repeated disappointments of the clamp suture of Dr. Sims, even in cases where, from their favorable nature, failure was not to be expected—and particularly in a case of double fistula, to which it proved so utterly inapplicable, that he was about to

abandon the case in despair, when an accident, similar to that which revealed to Newton the Law of Gravitation, pointed out to him the road to success.

In the case of double fistula, to which he alludes, he attributes the failure of the clamps to the irritating effects of the urine on the edges of the fistula; and he says, "I became satisfied that I should never be able to cure the case, unless I could invent some contrivance by which either to close both openings at one operation, or to afford complete protection to the denuded edges of one during the healing process." "To contrive an apparatus that would fulfil one or the other of these indications, required, I supposed, much more inventive talent than I possessed; and after a little thought, I abandoned all hope of providing any thing that would answer the purpose. Sometime afterwards, however, while buttoning my vest, it occurred to me that a somewhat similar process might be applied to such cases as the one above cited, and after turning the matter over in my mind, I determined to put the idea in practice. Accordingly I made a contrivance on the button principle, and applied it in a case where the clamp suture had failed three times. The result was, as it has been in every trial since, as satisfactory as could be desired."

In accordance with the manner of its discovery, and also its mode of action, Dr. Bozeman has dubbed it the "Button Suture;" and remarks, that it is "only a modification of the twisted" suture.

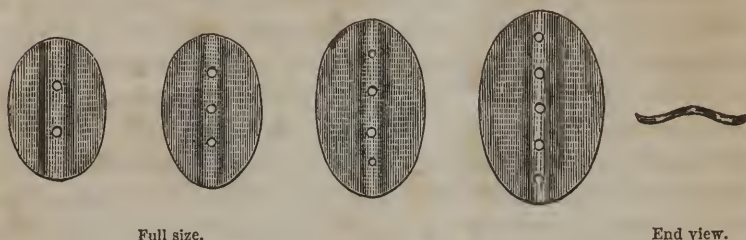
"The essential parts of the apparatus consist of wire for the sutures, a metallic button, or plate, and perforated shot to retain the latter in its place. The wire should be made of pure silver, about the size usually marked No. 93, and properly annealed. A length of about 18 inches should be allowed for each suture.

"The button possesses several peculiarities. It may be made either of lead or silver. The former, hammered out to the thickness of $\frac{1}{16}$ th of an inch, answers the purpose tolerably well. The latter can be made still thinner, and does better, on several accounts; it is lighter, less likely to yield under pressure, admits a higher polish, and allows the wires to be drawn through the holes without dragging."

The size and shape of the button will depend upon that of the fistula. The most common shape is oval. It must be concave on the under side, or that which lies in contact with the fistula; the

edges must be slightly turned up, to avoid irritating the vaginal lining, and it must be perforated in the centre with holes proportioned in number to the number of wires which it is found necessary to introduce; and the holes must be of sufficient size to pass the wires double.

Fig. 1.



Dr. Bozeman recommends that the sutures should be placed about $\frac{3}{16}$ ths of an inch apart. The size of the perforated shot, should be No. 3 bird shot.

The first steps of the operation do not differ materially from those of Dr. Sims. The position of the woman may be the same. Sims' speculum answers every purpose. And the freshening of the edges may be done in the same manner and with the same instruments. The wires are passed only through the mucous coat of the vagina, by means of silk threads. Dr. B. uses, for this purpose, a stout, straight, spear-pointed needle, and introduces it about half an inch from the freshened edge.

Fig. 2.

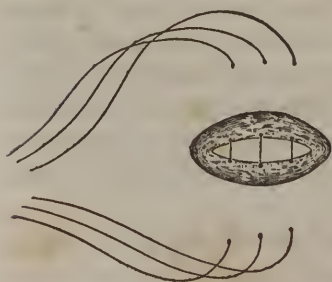


Figure 2 is a representation of the fistule of the most common shape, with its edges pared in the bevelled manner heretofore mentioned, and the silver wires drawn through.

Fig. 3.



The wires being lodged in their places, the ends are brought together, and the edges of the opening approximated as accurately as possible. For this purpose a steel rod, (Fig. 3,) fixed in a handle, perforated and flattened and raised into a kind of knob on one side at its distal extremity, (called by Dr. B. the "suture adjuster,") is employed—the ends of the wires being passed through the hole at its extremity, and the instrument run down (the knob downwards) upon the edges of the opening at each point where the wires have been inserted.

The doubled wires are then passed through the holes in the button, and this last pushed down upon the approximated lips of the fistulous opening.

The appearance of the parts after all the sutures are adjusted is faithfully represented in Fig. 4.

Fig. 4.



A perforated shot is then run on each doubled wire until it comes in contact with the button, against which it is held with sufficient force by strong forceps, and there pinched with the forceps, so as to prevent their slipping back.

The wires are now cut off about a quarter of an inch from the shot, and the ends may be separated and bent down over the shot, which prevents their irritating the vaginal wall as it collapses, and aids in securing the shot.

Fig. 5.

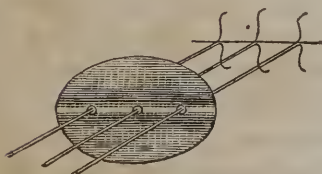


Fig. 6.

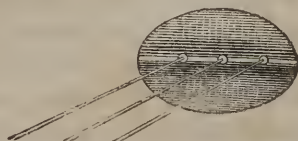


Fig. 7.

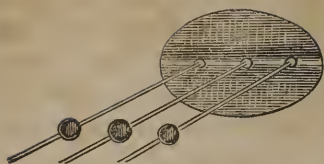


Fig. 8.



Figures 5, 6, 7 & 8, represent different stages of the application of the button and the shot upon the wire, as

taken from Dr. Bozeman's pamphlet.

Sims' catheter may now be introduced into the bladder, the patient put to bed, and the after treatment is the same as that recommended by Dr. Sims.

The sutures are not to be removed until the 10th or 12th day.

Dr. Bozeman's pamphlet gives the details of four cases of vesico-vaginal fistula treated by him with his button suture.

Case No. 1, was of three years standing; the clamp suture had failed after three trials. It was cured by one operation with the button suture.

Case No. 2. Double fistula, of seven months standing—cured by two operations with the button suture.

Case No. 3. Double fistula, of eighteen years standing—two successful operations with the button.

Case No. 4. Double fistula of nine years standing—several failures with clamp suture; cured by the button.

My own experience with the button suture may be illustrated by the detail of two cases; which will also show how much right I have to express an opinion concerning its merits, and to how much weight my testimony is entitled.

CASE 1st. Dolly—a negro belonging to Mr. Jacob Waldburg, of Savannah—was brought from St. Catherine's Island, her residence, to be treated for an incontinence of urine, which succeeded a very severe and protracted labour. It was ascertained that she had a fistulous communication between the bladder and vagina, about two inches from the vulva, its longest diameter one inch, situated transversely to the vaginal axis. An attempt was made to close the opening by Sims' method; but although the case seemed to be well adapted to this treatment, and promised a favorable result, such did not occur—the sutures cut themselves out in a very few days, and, if any thing, she was left in a worse condition than before the operation. Her master, discouraged from

any farther attempts to cure her, sent her back to his plantation, where she remained about eighteen months. At the end of that time, she was brought up to Savannah again and placed in my hands.

I found, on examining her, that the fistula was very much reduced in size, and that the longest diameter (about $\frac{1}{2}$ inch) was situated parallel with the axis of the vagina. The mucous membrane was somewhat excoriated around the fistula.

On the 15th day of January, 1857, the bowels having been purged on the day previous with castor oil, the patient was secured on the operating table, in the kneeling position—etherized—Sims' speculum introduced into the vagina, which was lighted up by means of a looking-glass, as has already been described. My assistants were Drs. Wragg and Charlton, and Messrs. McFarlane and Johnson, students of the Savannah Medical College. A semi-lunar incision was made, with a small double-edged knife, curved on the flat, at the distance of $\frac{1}{3}$ rd of an inch from the free edge of the opening, on each side, and the mucous membrane of the vagina dissected off. With a short, curved needle, armed with silver wire, (without the intervention of silk thread,) and fixed in Sims' grooved forceps, three points of suture were made—the needle being introduced $\frac{1}{2}$ inch from the freshened edge, and passed only through the vaginal mucous coat. The ends of the wires were then brought together, the edges of the wound placed in apposition, the double wires passed through perforations in a button made of lead, and secured by the perforated shot. The wires were cut off about $\frac{1}{4}$ inch from the shot, the ends separated and turned down over the shot.

Sims' catheter was introduced, and the patient was ordered opium, in 2 grain pills, to be repeated sufficiently often to allay pain, procure rest, and constipate the bowels. Diet—crackers and tea.

Jan. 16th. Complaints of pain in the bowels and nausea, and towards evening vomited, probably the effects of opium, having taken it pretty freely. Prescribed poultice to bowels and cold water to head—stop opium and substitute paregoric.

Jan. 17th and 18th. More comfortable; anorexia.

Jan. 22nd. Speculum introduced and parts examined—every thing in satisfactory condition. Unusual difficulty in retaining catheter in proper position—it has a tendency to turn; to prevent

which, lint spread with cerate is packed around it, the catheter being passed through a hole in the lint, which also protects the vulva and perineum from the action of the urine as it flows from the end of the catheter. Catheter removed once or twice a day, and cleansed, and vulva and vagina well syringed with warm water.

Jan. 25th. Sutures removed. Perfect union of the edges throughout the whole length of the fistula; urine perfectly retained; every part healthy in appearance. The catheter was retained in the bladder five or six days longer.

Jan. 27th. Bowels moved by a warm water enema; and she was allowed to quit her bed on the 30th.

I have been very agreeably surprised at the very satisfactory result of this case; for I felt that my first attempt at manufacturing the button must be rude; and, moreover, after its application, several drops of urine were observed to pass through the middle perforation of the button.

CASE 2nd. Leah—negro—owned by a rice planter on Savannah river; sent to town to be treated by Dr. J. A. Wragg, the attending physician, for incontinence of urine, one of the sequelæ of a difficult labour.

Vesico-vaginal fistula was diagnosed at the distance of $1\frac{1}{2}$ inches from the external orifice of the urethra—its longest diameter rather more than an inch, and situated transversely to the vaginal axis; hernial protrusion of vesical mucous coat, covered with red vascular granulations, which interfered very much with the operations which were performed, and was on one occasion removed with scissors. Her ability to retain her urine for a single moment was almost null, and she experienced the usual amount of excoriation and suffering.

An attempt was made to close the fistula, on Sims' plan, soon after her arrival in town, (during the spring of 1855,) by Dr. Wragg, assisted by several medical friends and myself. This operation resulted unfavorably, as well as a second and third.

The last operation was performed by myself, on the 4th day of July, 1856. The case seemed to be every way favorable for the operation, which was performed with great care and judgment in each case, and the failure was as unexpected as it was vexatious.

As very much depends in such cases, upon the treatment sub-

sequent to the operation, this was followed up faithfully and perseveringly in every instance.

After the last operation, as the edges of the incision became covered with granulations, and the flow of urine had ceased, through the fistula, I was encouraged to hope that union had occurred, and accordingly the catheter and recumbent position were retained, and the constipation of the bowels not removed until the end of fifteen days, when it became evident that the operation had failed.

The patient was returned to her master's plantation for the recuperation of her general health, which had suffered somewhat by the confinement.

January 1st, 1857. Leah returned to town for the purpose of undergoing a fourth operation; and having succeeded so satisfactorily in the other case, I determined to give her the chance of the button suture of Dr. Bozeman.

The fistula was in very much the same condition as when I last operated on her.

The mucous membrane of the vagina was somewhat inflamed and excoriated, and there was calcarous deposits on the edges of the opening, and on the hair of the vulva and perineum. Accordingly, the excoriations were repeatedly touched with nit. arg. and a solution of sulph. zinc (3j. to Aq. Oj.) was thrown into the vagina twice a day; also, she was put upon the internal use of sulphuric acid (3j. to Aq. Oj., one wineglassful three times a day,) for the purpose of altering the character of the urine, and preventing farther deposition.

February 19th. The operation was performed,—the patient having been prepared as usual, by previous purging—being etherized and placed in the same position as in the previous operations. Denudation having been properly effected by a transverse elliptical incision with the knife curved on the flat, at a sufficient distance from the anterior and posterior lips of the fistula, and only through the vaginal mucous coat, five points of suture were established, by the introduction of silver wire, with a small curved needle threaded directly with wire and not silk.

The edges having been carefully brought together, the ends of the wires were passed through the perforated holes of a silver plate, oval in shape, one inch in length, and five-eighths of an inch wide; the plate pressed down and secured by the shot upon

the fistulous opening. The contact of the urine with the fistula was prevented by the introduction of the catheter. Paregoric was freely administered instead of opium.

Examination on the fourth day exhibited a satisfactory state of everything. The sutures were removed on the tenth day, and a perfect cure was witnessed. She was confined to bed, and the catheter retained for six days longer, when the suture points being nearly obliterated, the catheter was removed and she was allowed to leave her bed. I examined her for the last time, on March 21st, and was enabled to pronounce her perfectly cured.

I have thus detailed three cases occurring in my own practice, and treated by suture, on the two principles which may now be regarded as most worthy of confidence; and I think it will be conceded that I may, without very great presumption, claim the right to testify in regard to their respective merits. It is to be remarked that in the treatment of these three cases, nine operations by suture were performed—seven, by the clamp suture of Dr. Sims, and the other two, by the button suture of Dr. Bozeman.

The clamp suture failed in every instance to effect a cure; even in the two cases which seemed as favorable for its success as could be desired. The button suture succeeded perfectly in both cases, on the first trial. The preference must, therefore, be given without hesitation to the latter. And I fully endorse the statement of its discoverer, who claims for it the following advantages:

1st. It protects the edges of the fistulous opening against the irritation of the urine, of the vaginal discharges and the atmosphere.

2nd. It prevents the wires from cutting out.

3rd. It acts the part of a splint, in keeping the approximated edges in close contact, and at rest.

I consider this suture the greatest improvement that has ever been made in the treatment of this class of cases. The surgeon can now approach them with a confidence of success, before unknown. The profession and the public, owe to Dr. Bozeman a debt of unspeakable gratitude. He has achieved an exploit, of which he has more reason to be proud, than if he were the hero of an Austerlitz or a Waterloo.

It is probable that other surgeons may make some slight alterations, in the employment of this method of operating, to suit their own convenience, and their own peculiar manner of manipulating.

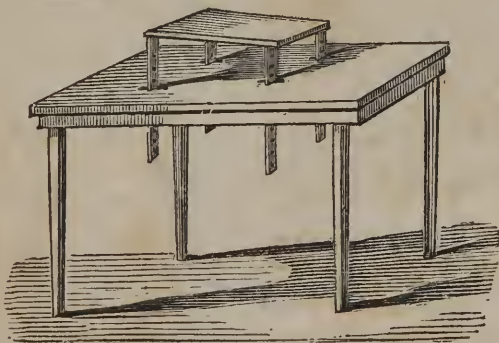
I think that the silk ligature, which is used both by Dr. Sims and Dr. Bozeman, for conveying the urine to its place, is an unnecessary complication. I have observed no disadvantage to result from threading the needle directly with the wire.

I prefer a needle smaller, and more curved at the point, than is recommended by either of these surgeons.

I have observed no disadvantage to result from placing the patient under an anæsthetic agent; it insures rest and freedom from suffering. The patient, Chloe, could not have been controlled without it.

The urine very frequently deposits calcareous matter on the edges of the fistulous opening, which has a tendency to prevent union. This may be prevented by medicating the urine, by the exhibition of sulphuric acid, for some days previous to the operation, as was suggested to me by my friend Dr. James B. Reid, who was one of my assistants in several of the operations.

I have had constructed a very convenient operating table, which has served a good purpose in the treatment of the cases which I have reported. Its dimensions are 3 feet by 4,—30 inches high. On the table is erected a square frame $2\frac{1}{2}$ by 2 feet, open in the middle, the side pieces 3 inches wide, and $\frac{3}{4}$ of an inch thick;—these are supported by legs of the same shape and size as the sides, which are attached to the frame by iron hinges, so that the frame can be placed at any angle with the legs. The legs are let into morticed holes in the top of the table, so that they can move up and down, and elevate or depress the frame or platform which supports the trunk of the patient's body, and suit it to her height. The extent of elevation is regulated by pegs inserted into holes in the legs of the table.



In this manner, the patient's trunk is supported in a kneeling position—a folded blanket having been thrown over the supporting frame-work, one end resting on the table, to protect the knees from the hard surface of the table. The arms and legs of the patient are secured by straps to iron rings screwed into the table, and her body by a saddle-girth to the supporting frame work; so, that she is incapable of moving in case the anæsthetic does not quiet her sufficiently, as sometimes occurs.

It is usual to allow the urine to dribble from the end of the catheter, and be absorbed by cloths placed under the nates. With all the care that can be exercised, inflammation and excoriation of the vulva and nates will occur, and the patient is kept in a very uncomfortable state.

I have no doubt that an apparatus may be so arranged for receiving the urine, made of some water-proof material, as to prevent this inconvenience.

I prevented it in a measure, in the last two cases reported, by passing the external end of the catheter through a hole in a piece of patent lint spread with cerate, and sufficiently long to cover the lower part of the vulva and perineum.

